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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,053	03/29/2006	Naoki Yoshinaga	52433/841	7701

26646 7590 02/01/2011
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EXAMINER	
SHEVIN, MARK L	
ART UNIT	PAPER NUMBER
1733	
MAIL DATE	DELIVERY MODE
02/01/2011	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)
	10/574,053	YOSHINAGA ET AL.
	Examiner	Art Unit
	MARK L. SHEVIN	1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 December 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,7 and 8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 2, 7, 8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Acknowledgement of RCE

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on December 28th, 2010 has been entered.

Status of Claims

2. Claims 1, 2, 7, and 8, filed December 28th, 2010 are pending. Claims 1, 2, 7, and 8 are amended and claims 3-6 and 9-14 are cancelled.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claims 1, 2, 7, and 8** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The final paragraph of claim 1 states:

> a minimum value of CTS when welding test pieces by a welding current of the region of occurrence of expulsion and surface flash, that it, (CE+1.5)KA, of 0.8 or more, when the minimum value of CTS when welding test pieces by a welding current of CE 10 times is defined as "1", where CTS is a tensile load in the biaxial tensile test.

The claim refers to "the biaxial tensile test" however there is no antecedent basis for this recitation as there is no previous mention of a biaxial tensile test.

It is unclear what is actually being limited by final paragraph of claim 1 as CTS seems to mean **c**ross(-joint) **t**ensile **s**trength, not biaxial tensile strength according to JIS Z 3137, it is not clear what the CE value is referring to when Applicants "welding test pieces by a welding current of CE 10 times is defined as "1" (is this 10 times the value of CE or a CE test performed with 10 iterations?), and the uppercase KA implies additional variables when the instant specification suggests that KA is really kA, which appears to be kiloamps (kilo-amperes). Furthermore the first mention of a minimum of CTS in final paragraph implies CTS ≥ 0.8 while the last part of the final paragraph on p. 4 of 8 then specifies a minimum of CTS of 1.

Applicants are recommended to rephrase this final paragraph to clarify what CTS, CE, and kA actually represent, their units, and to rewrite the CTS, CE, kA in the form of an inequality or equation for better comprehension of the metes and bounds of the claimed steel sheet.

Claim Rejections - 35 USC § 103

4. **Claims 1 and 2** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yasuhara** (US 6,364,968 B1). The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Yasuhara discloses a thin high-strength, hot-rolled steel sheet with a composition (Abstract, col. 4, lines 30-55, and claims 1-4) as shown in the comparative table below:

Element	Yasuhara	Claims 1-2	Overlap
C	0.05 – 0.30	0.030 – 0.10	0.05 – 0.10
Mn	1.5 – 3.5	1.7 – 2.49	1.7 – 2.49
P	0 – 0.02	0.001 – 0.02	0.001 – 0.02
S	0 – 0.005	0.0001 – 0.006	0.0001 - 0.005
Al	0 – 0.150	0 – 0.060	0 – 0.060
N	0 – 0.02	0.0001 – 0.0070	0.0001 – 0.007
Si	0.03 – 1.0	0.54 – 0.65	0.54 – 0.65
Ti	0.005 – 0.2	0.01 – 0.055	0.01 – 0.055
Nb	0.003 – 0.20	0.012 – 0.055	0.012 – 0.055
Mo	0.02 – 1.0	0.07 – 0.55	0.07 – 0.55
B	0.0005 – 0.004	0.0005 – 0.004	0.0005 – 0.004
Cr	0.02 – 1.0	0.01 – 1.5	0.02 – 1.0
Ni	0.02 – 1.0	0.01 – 2.0	0.02 – 1.0
Cu	0.02 – 1.0	0.001 – 2.0	0.02 – 1.0
Co	n/a	0.01 – 1	n/a
W	n/a	0.01 – 0.3	n/a
Fe	Balance	Balance	Balance

The steel sheets have a microstructure of fine bainite grains at an area percentage of not less than 90% (col. 4, lines 54-56).

The method of producing the sheets includes steps of (col. 5, lines 1-16 and col. 13, lines 59-68):

i) heating a steel slab to a temperature of not higher than about 1200 °C,

ii) hot rolling the slab at a finish rolling end temperature of not lower than about 800 °C,

iii) starting to cool a hot-rolled steel sheet within about 2 seconds after the end of the hot rolling step,

iv) continuously cooling the hot-rolled steel sheet down to a coiling temperature at a cooling rate of about 20 - 150 °C/s, and

v) coiling the hot-rolled steel sheet at 300 - 500 °C.

vi) pickling (col. 13, lines 59-61)

vii) skin pass rolling (col. 13, lines 60-63, which is a form cold rolling with a small reduction).

viii) electroplating and hot dipping (col. 13, lines 65-68).

Tables 3 and 5 disclose inventive steels with TS above 780 MPa, yield ratios between 0.64 and 0.90, $TSxEl^{1/2}$ of greater than 3320, and $YRxTSxEl^{1/2}$ of more than 2320.

Yasuhara does not disclose a maximum value of CTS where (CE+1.5) KA is 0.8 or more.

Regarding claims 1-2, with respect to the preamble stating a high yield ratio, high strength, cold rolled steel sheet superior in spot weldability and ductility, Yasuhara is considered to be a high yield ratio high-strength steel sheet with superior ductility

given that has a tensile strength within the claimed range of 780 MPa or more, a yield ratio in the claimed range of 0.64 - 0.90, and products of TS x $(El)^{1/2}$ and YR x TS x $(El)^{1/2}$ within the claimed ranges for ductility (El), respectively.

With respect to the claimed microstructure of over 85% area percent of lower bainite or bainitic ferrite, while Yasuhara does not specify the subtype of bainite produced in his steels, one of ordinary skill in the art would have reasonably expected Yasuhara's invention to yield lower bainite and in the claimed range of over 85 area% as Yasuhara discloses substantially similar hot-rolled steel sheets of compositions overlapping all the required alloying limitations produced by a substantially similar process as stated above including and possessing bainite as the main phase of not less than 90% (col. 4, lines 54-56).

With respect to the overlapping base steel composition of Yasuhara, it would have been obvious to one of ordinary skill in metallurgy to select any portion of the composition ranges, including the claimed ranges, from the overlapping ranges disclosed in Yasuhara because Yasuhara finds that the prior art composition in the entire disclosed ranges has a suitable utility and the normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages."); *In re Hoeschele*, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969). From MPEP § 2144.05: In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541

F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

With respect to the compositional formula "1.1 ≤ 14 x Ti (%) ..." , it is well settled that there is no invention in the discovery of a general formula if it covers a composition described in the prior art; see *In re Cooper and Foley* 1943 C.D. 357, 553 O.G. 177, 57 USPQ 117, *Taklatwalla v. Marburg*, 620 O.G. 685, 1949 C.D. 77, and *In re Pilling*, 403 O.G. 513, 44 F(2) 878, 1931 C.D. 75. In absence of evidence to the contrary, the selection of the proportions of elements would appear to require no more than routine investigation by those ordinary skilled in the art; see *In re Austin et al.* 149 USPQ 685, 688. It would have been obvious to one of ordinary skill in the art to select alloy compositions fulfilling the claimed compositional relationships from the alloy compositional ranges disclosed by Yasuhara.

With respect to the claimed mechanical properties of yield ratio, $TSx(El)^{1/2}$, $YRxTSx(El)^{1/2}$, and maximum tensile strength, Tables 3 and 5 of Yasuhara disclose inventive steels with TS above 780 MPa, yield ratios between 0.64 and 0.90 (and between 0.72 and 0.90), $TSxEl^{1/2}$ of greater than 3320, and $YRxTSxEl^{1/2}$ of more than 2320.

With respect to the maximum value of CTS ((CE+1.5) KA is made 0.8 or more), the intensity ratio of a {110} plane parallel to the sheet surface at 1/8 thickness, and the steel sheet being superior in spot weldability, one of ordinary skill in metallurgy would have reasonably expected the prior art of Yasuhara to possess these claimed properties as Yasuhara discloses thin hot-rolled steel sheets of an overlapping base steel

composition, produced by a substantially similar process as stated (overlaps the requirements of cancelled method claim 9 and has substantially similar processes of slab heating, hot rolling, cooling, and coiling). The combination of an overlapping base composition processed by a substantially similar (overlapping) processing method produces the reasonable expectation of success.

Furthermore, one of ordinary skill in metallurgy would have reasonably expected the prior art of Yasuhara to possess these claimed properties as Yasuhara discloses a substantially similar product of hot-rolled steel sheets of an overlapping base steel composition, a substantially similar microstructure of lower bainite or bainitic ferrite, and substantially similar mechanical properties in terms of tensile strength, yield ratio, and elongation and one would steels so similar across the spectrum of quantitative and qualitative descriptions of structure to likewise possess the same structural features at the microstructural level which gives rise to the claimed properties of CTS, spot weldability, and x-ray intensity ratios.

Where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. *In re Best,* 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada,* 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

With respect to the amendment to the preamble stating that the steel sheet is cold-rolled, it is not clear that the recitation of "cold-rolled" would be expected to impart distinctive structural characteristics to the final product, particularly in view of the lack of particulars relating to the degree of reduction. Even if cold-rolled implies a structural distinction, Applicants have the burden of explaining the distinction in view of Yasuhara's steel sheets being substantially similar to the claimed sheets in terms of base composition (all ranges overlaps), processing (substantially similar as explained above), and mechanical properties. Moreover, Yasuhara's recitation of skin pass rolling is also considered to render Yasuhara's steel sheets "cold-rolled" as skin pass rolling is a form of cold rolling (albeit with a small reduction).

5. **Claims 1 and 2** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Tosaka** (JP 2000-080440 – Machine translation).

Tosaka:

Tosaka discloses high strength cold rolled steel sheet with alloying components (claims 1-4 and paragraphs 0015-0030 and 0042) as shown in the comparative table below:

Element	**Tosaka**	**Claims 1-2**	**Overlap**
C	0.05 – 0.30	0.030 – 0.10	0.05 – 0.10
Mn	1.5 – 3.5	1.7 – 2.49	1.7 – 2.49
P	0 – 0.02	0.001 – 0.02	0.001 – 0.02
S	0 – 0.005	0.0001 – 0.006	0.0001 – 0.005

Al	0 – 0.015	0 – 0.060	0 – 0.015
N	0 – 0.02	0.0001 – 0.0070	0.0001 – 0.0070
Si	0 – 1.0	0.54 – 0.65	0.54 – 0.65
Ti	0.005 – 0.2	0.01 – 0.055	0.01 – 0.055
Nb	0.005 – 0.10	0.012 – 0.055	0.012 – 0.10
Mo	0.02 – 1.0	0.07 – 0.55	0.07 – 0.55
B	0.0005 – 0.004	0.0005 – 0.004	0.0005 – 0.004
Cr	0.02 – 1.0	0.01 – 1.5	0.02 – 1.0
Ni	0.02 – 1.0	0.01 – 2.0	0.02 – 1.0
Cu	0.02 – 1.0	0.001 – 2.0	0.02 – 1.0
Co	n/a	0.01 – 1	n/a
W	n/a	0.01 – 0.3	n/a
Fe	Balance	Balance	Balance

Tosaka's steel sheets have a tensile strength of 780 MPa or more (Abstract) and have a microstructure composed essentially of bainite (Abstract).

Table 3 discloses steel sheets with tensile strengths, yield ratios, TS x $(El)^{1/2}$, and YR x TS x $(El)^{1/2}$ overlapping the claimed ranges.

Tosaka's steel sheets are produced by a substantially similar process as compared to the inventive process as disclosed in the instant specification:

i) Heating a cast slab to 1050 - 1100°C after cooling once (reheating – para 0039)

ii) Hot rolling ending at Ar_3 or above (950 – 800°C – para 0040)

iii) Coiling at 400 - 700°C ("rolling up" - para 0041)

iv) Pickling (para 0042)

v) Cold rolling at a reduction ratio of 40% or more (para 0042)

vi) Annealing at a temperature of 800 – 1000°C (para 0042) with heating at a rate of 15 - 150°C/second

vii) Cooling to below 350°C at a cooling rate of 15 - 150°C/second (para 0043)

Regarding claims 1 and 2, with respect to the preamble stating a high yield ratio, high strength, cold rolled steel sheet superior in spot weldability and ductility, Tosaka is considered to be a high yield ratio high-strength steel sheet with superior ductility given that has a tensile strength within the claimed range of 780 MPa or more, a yield ratio in the claimed range of 0.64 - 0.90, and products of TS x $(El)^{1/2}$ and YR x TS x $(El)^{1/2}$ within the claimed ranges for ductility (El), respectively.

With respect to the overlapping base steel composition of Tosaka, it would have been obvious to one of ordinary skill in metallurgy to select any portion of the composition ranges, including the claimed ranges, from the overlapping ranges disclosed in Tosaka because Tosaka finds that the prior art composition in the entire disclosed ranges has a suitable utility and the normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages.", see MPEP § 2144.05.

With respect to the compositional formula "1.1 ≤ 14 x Ti (%) ..." it would have been obvious to one of ordinary skill in the art to select alloy compositions fulfilling the claimed compositional relationships from the alloy compositional ranges disclosed by Tosaka for the same reasons as stated with respect to Yasuhara above.

With respect to the maximum value of CTS ((CE+1.5) KA is made 0.8 or more) and the intensity ratio of a {110} plane parallel to the sheet surface at 1/8 thickness, and the steel sheet being superior in spot weldability, one of ordinary skill in metallurgy would have reasonably expected the prior art of Tosaka to possess these claimed properties as Tosaka discloses steel sheets of an overlapping base steel composition, produced by a substantially similar process as stated (overlaps the requirements of cancelled method claim 9 and has substantially similar processes of slab heating, hot rolling, cooling, coiling, pickling, cold rolling, and annealing). The combination of an overlapping base composition processed by a substantially similar (overlapping) processing method produces the reasonable expectation of success.

Furthermore, one of ordinary skill in metallurgy would have reasonably expected the prior art of Tosaka to possess these claimed properties as Tosaka discloses a substantially similar product of hot-rolled steel sheets of an overlapping base steel composition, a substantially similar microstructure of lower bainite or bainitic ferrite, and substantially similar mechanical properties in terms of tensile strength, yield ratio, and elongation and one would steels so similar across the spectrum of quantitative and qualitative descriptions of structure to likewise possess the same structural features at

the microstructural level which gives rise to the claimed properties of CTS, spot weldability, and x-ray intensity ratios.

With respect to the claimed microstructure of over 85% area percent of lower bainite or bainitic ferrite, while Tosaka does not specify the subtype of bainite produced in his steels or the specific area percentage, one of ordinary skill in the art would have reasonably expected Tosaka's invention to yield lower bainite and in the claimed range of over 85 area% as Tosaka discloses substantially similar steel sheets of compositions overlapping all the required alloying limitations produced by a substantially similar process as stated above, including possessing bainite as the main phase, see Table 3.

6. **<u>Claims 7 and 8</u>** are rejected under 35 U.S.C. 103(a) as being unpatentable over either one of **Yasuhara** or **Tosaka** as applied to claims 1 and 2 above, in further view of **Marder** (Arnold R. Marder, Effects of Surface Treatments on Materials Performance, in *Materials Selection and Design, Vol. 20 of the ASM Handbook*, (1997), p. 1-10).

Yasuhara discloses that various surface coatings may be optionally formed on the steel sheet by processes such as hot dipping (col. 13, lines 65-67) as does Tosaka (para 0001 and 0061); however neither references discloses these processes as hot-dip galvanizing or hot-dip galvanizing and alloying.

Marder teaches that steels are often coating with a layer of zinc by a hot-dip galvanizing process to improve corrosion resistance (p. 4, para 1). Marder further teaches that weldability, in particular the spot weldability, of zinc coatings is an

important property because most galvanized product is joined using spot welding (p. 6, para 1).

With respect to galvanneal coatings (galvanizing followed by alloying by diffusion in a later annealing stage), formability is important because if the forming operation cracks the zinc coating, corrosion resistance will be lessened (p. 7, para 2). Furthermore, galvanneal coatings offer improved spot weldability and paintability over galvanized coatings (p. 7, para 2).

It would have been obvious to one of ordinary to one of ordinary skill in metallurgy, at the time the invention was made, to incorporate the hot-dip galvanized coatings of Marder into the steel sheet products of either one of Yasuhara or Tosaka as Marder taught that a galvanized product has increased corrosion resistance and in particular, galvannealed products have improved spot weldability and paintability which would have motivated one interested in producing steel sheets as these products are usually use in automotive applications as taught by both Yasuhara (col. 1, lines 8-15) and Tosaka (para 0001, 0003, and 0061).

7. **<u>Claims 1, 2, 7, and 8</u>** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Fujita** (JP 2003-193194– Machine translation). Note that 103(c) may not be used to remove this reference as it qualifies as prior art under 102(a), see MPEP 2146, final paragraph.

Fujita discloses a high strength steel sheet with excellent weldability with alloying contents (claims 1-5 and paragraphs 0014-0021) as shown in the comparative table below:

Element	**Fujita**	**Claims 1-2**	**Overlap**
C	0.01 – 0.2	0.030 – 0.10	0.03 – 0.1
Mn	0.01 – 3	1.7 – 2.49	1.7 – 2.49
P	0.001 – 0.1	0.001 – 0.02	0.001 – 0.02
S	0.001 – 0.05	0.0001 – 0.006	0.001 – 0.006
Al	0.005 – 2	0 – 0.060	0.005 – 0.06
N	0 – 0.02	0.0001 – 0.0070	0.0001 – 0.0070
Si	0.01 – 2.5	0.54 – 0.65	0.54 – 0.65
Ti	0.001 – 1	0.01 – 0.055	0.01 – 0.055
Nb	0.001 – 1.0	0.012 – 0.055	0.012 – 0.055
Mo	0.01 – 5.0	0.07 – 0.55	0.07 - 0.55
B	0.0001 – 0.1	0.0005 – 0.004	0.0005 – 0.004
Cr	0.01 – 5	0.01 – 1.5	0.01 – 1.5
Ni	0.01 – 5	0.01 – 2.0	0.01 – 2.0
Cu	0.01 – 5	0.001 – 2.0	0.01 – 2.0
Co	0.01 – 5	0.01 – 1	0.01 – 1
W	0.01 – 5	0.01 – 0.3	0.01 – 0.3
Fe	Balance	Balance	Balance

Fujita's steel sheets have a tensile strength of 800 MPa or more (Abstract) and have a microstructure of bainite or bainitic ferrite of 70 area% or greater (Abstract) where the bainite may be lower bainite in particular (para 0011).

Tables 2 and 3 disclose steel sheets with tensile strength, yield ratio (the 0.xx decimal point column sixth from the rightmost side in each table), TS x $(El)^{1/2}$, and YR x TS x $(El)^{1/2}$ overlapping the claimed ranges.

Fujita discloses that the steel sheets are cold rolled (para 0022).

<u>Regarding claims 1 and 2,</u> with respect to the preamble stating a high yield ratio, high strength, cold rolled steel sheet superior in spot weldability and ductility, Fujita is considered to be a high yield ratio high-strength steel sheet with superior ductility given that has a tensile strength within the claimed range of 780 MPa or more, a yield ratio in the claimed range of 0.64 - 0.90, and products of TS x $(El)^{1/2}$ and YR x TS x $(El)^{1/2}$ within the claimed ranges for ductility (El), respectively.

With respect to the claimed microstructure of over 85% area percent of lower bainite or bainitic ferrite and the overlapping base steel composition of Fujita, it would have been obvious to one of ordinary skill in metallurgy to select any portion of the composition ranges, including the claimed ranges, from the overlapping ranges disclosed in Fujita because Fujita finds that the prior art composition in the entire disclosed ranges has a suitable utility and the normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages.

With respect to the compositional formula "1.1 ≤ 14 x Ti (%) ..." it would have been obvious to one of ordinary skill in the art to select alloy compositions fulfilling the claimed compositional relationships from the alloy compositional ranges disclosed by Fujita for the same reasons as stated with respect to Yasuhara above.

With respect to the maximum value of CTS ((CE+1.5) KA is made 0.8 or more) and the intensity ratio of a {110} plane parallel to the sheet surface at 1/8 thickness, and the steel sheet being superior in spot weldability, one of ordinary skill in metallurgy would have reasonably expected the prior art of Fujita to possess these claimed properties as Fujita discloses a substantially similar product of hot-rolled steel sheets of an overlapping base steel composition, a substantially similar microstructure of lower bainite or bainitic ferrite, and substantially similar mechanical properties in terms of tensile strength, yield ratio, and elongation and one would steels so similar across the spectrum of quantitative and qualitative descriptions of structure to likewise possess the same structural features at the microstructural level which gives rise to the claimed properties of CTS, spot weldability, and x-ray intensity ratios.

With respect to the amendment to the preamble stating that the steel sheet is cold-rolled, Fujita discloses that his steel sheets were cold-rolled (para 0022).

Regarding claim 7, Fujita discloses (para 0022) that his steel sheets may be subjected to a process of "hot-dip zincing" which is considered to mean "hot-dip galvanizing" as zinc coatings formed on steel result in a galvanic pair (galvanization) and Fujita later mentions galvanization only a few words later in the same sentence.

Regarding claim 8, Fujita discloses (para 0022) that his steel sheets may be subjected to a process of “melting alloy galvanization" which is considered to mean "hot-dip galvanized and alloyed" for the same reasons as stated for claim 7.

Response to Applicant’s Arguments:

8. Applicant's arguments filed December 28th, 2010 have been fully considered but they are not persuasive.

Applicants assert (p. 6, para 2) that Yasuhara does not disclose cold-rolling and thus does not teach a cold-rolled steel or a steel possessing the claimed x-ray intensity ratio and yield strength. In response, with respect to the amendment to the preamble stating that the steel sheet is cold-rolled, it is not clear that the recitation of "cold-rolled" would be expected to impart distinctive structural characteristics to the final product, particularly in view of the lack of particulars relating to the degree of reduction. Even if cold-rolled implies a structural distinction, Applicants have the burden of explaining the distinction in view of Yasuhara's steel sheets being substantially similar to the claimed sheets in terms of base composition (all ranges overlaps), processing (substantially similar as explained above), and mechanical properties. Moreover, Yasuhara's recitation of skin pass rolling is also considered to render Yasuhara's steel sheets "cold-rolled" as skin pass rolling is a form of cold rolling (albeit with a small reduction).

Applicants assert (p. 6, para 3 to p. 7, para 1) that as Yasuhara does not disclose cold rolling or any of Applicants’ discussed process steps as outlined in the instant specification, p. 23, lines 29-35, p. 24, lines 31 to 9. 25, line 1, one skilled in the art

would have expected the claimed steel sheets and those of Yasuhara to be different. In response, this is not persuasive because Yasuhara is a substantially similar steel produced by a substantially similar production process as explained in the rejections of claims 1 and 2 in section 4 above. "When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not." *In re Spada,* 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

Applicants assert (p. 7, para 2) that Yasuhara is not concerned with spot weldability. In response, while Yasuhara does not specifically mention spot weldability, Yasuhara does refer to the effect of various parameters of his invention on overall weldability (col. 5, lines 62 to col. 6, line 1; col. 6, lines 40-42) and nevertheless Yasuhara is considered to be "superior in spot weldability" for the reasons as stated in section 4 of the instant Office action.

Applicants assert (p. 7, para 4) that Marder only discloses the common knowledge of hot dip coating, not the characteristics features of the relationship between the steel composition of the base steel and spot weldability or the claimed microstructure or present production method. In response, Marder need not disclose the relationship between steel composition and spot weldability, the present microstructure, or the present production method – only provide evidence of motivation to hot-dip galvanize and hot-dip galvanize and alloy steel sheets.

Conclusion

-- Claims 1, 2, 7, and 8 are rejected
-- No claims are allowed

The rejections above rely on the references for all the teachings expressed in the texts of the references and/or one of ordinary skill in the metallurgical art would have reasonably understood or implied from the texts of the references. To emphasize certain aspects of the prior art, only specific portions of the texts have been pointed out. Each reference as a whole should be reviewed in responding to the rejection, since other sections of the same reference and/or various combinations of the cited references may be relied on in future rejections in view of amendments.

All recited limitations in the instant claims have been met by the rejections as set forth above. Applicant is reminded that when amendment and/or revision is required, applicant should therefore specifically point out the support for any amendments made to the disclosure. See 37 C.F.R. § 1.121; 37 C.F.R. Part §41.37 (c)(1)(v); MPEP §714.02; and MPEP §2411.01(B).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark L. Shevin whose telephone number is (571) 270-3588 and fax number is (571) 270-4588. The examiner can normally be reached on Monday-Friday, 8:30 am to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King, can be reached at (571) 272-1244. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

/Mark L. Shevin/
Examiner, Art Unit 1733
January 25th, 2011
10-574,053

/George Wyszomierski/
Primary Examiner
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